Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method performed by a computer for computing modified discrete cosine ~~transfer~~ transform comprising the steps of:

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computing $$x(k)=\begin{cases}[-y(26-k)-y(27+k)]\cdot b_k & \text{for} \quad 0\le k\le 8\\ [y(k-9)-y(26-k)]\cdot b_k & \text{for} \quad 9\le k\le 17\end{cases};$$

computing $$Y'(n)=\sum_{k=0}^{17}x(k)\cos[\frac{\pi}{36}(2k+1)n] \quad \text{for} \quad 0\le n\le 17\ ;$$

defining $Y(0)=Y'(0)/2$; and

computing $Y(n)=Y'(n)-Y(n-1)$ for $1\le n\le 17$,

where y is an input data, *x(k)* is re-arranged data for y, *Y'* is discrete cosine transform of *x*, *Y* is modified discrete cosine transform of y, and b_k is a constant.

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2. (Currently Amended) An ~~MPEG~~ MP-III encoder/decoder comprising:

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means for computing $$x(k)=\begin{cases}[-y(26-k)-y(27+k)]\cdot b_k & \text{for} \quad 0\le k\le 8\\ [y(k-9)-y(26-k)]\cdot b_k & \text{for} \quad 9\le k\le 17\end{cases};$$

means for computing $$Y'(n)=\sum_{k=0}^{17}x(k)\cos[\frac{\pi}{36}(2k+1)n] \quad \text{for} \quad 0\le n\le 17\ ;$$

means for defining $Y(0)=Y'(0)/2$; and

means for computing $Y(n)=Y'(n)-Y(n-1)$ for $1\le n\le 17$,

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where y is an input data, $x(k)$ is re-arranged data for y, Y' is discrete cosine transform of x, Y is modified discrete cosine transform of y, and b_k is a constant.

3. (Currently Amended) The encoder/decoder of claim 2, further comprising:

means for computing $\cancel{Y'(k) = Y(k) \cdot b_k}$ $Y''(k) = Y(k) \cdot b_k$ for $0 \le k \le 17$;

means for computing $\cancel{y'''(n) = \sum_{k=0}^{17} Y'(k) \cos[\frac{\pi}{2*18}(2k+1)n]}$

$$y'''(n) = \sum_{k=0}^{17} Y''(k) \cos[\frac{\pi}{2*18}(2k+1)n] \quad \text{for} \quad 0 \le n \le 17 \ ;$$

T1,0290

means for computing $$y'(n) = \begin{cases} y'''(n+9) & \text{for} \quad 0 \le n \le 8 \\ 0 & \text{for} \quad n = 9 \\ -y'''(27-n) & \text{for} \quad 10 \le n \le 26 \\ -y'''(n-27) & \text{for} \quad 27 \le n \le 35 \end{cases} ;$$

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means for defining $y(0) = \sum_{k=0}^{18-1} Y(k) \cdot c_k$; and

means for computing $y(n) = y'(n) - y(n-1)$ for $1 \le n \le 35$,

where Y'' is the modified discrete cosine transform of y multiplied by b_k, y''' is the discrete cosine transform of Y'', and y' is re-arranged data for y'''.

4. (Currently Amended) An electronic circuit for fast computation of computing modified ~~inverse~~ discrete cosine transform comprising:

a first circuit for computing

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$$x(k) = \begin{cases} [-y(26-k) - y(27+k)] \cdot b_k & \text{for} \quad 0 \le k \le 8 \\ [y(k-9) - y(26-k)] \cdot b_k & \text{for} \quad 9 \le k \le 17 \end{cases};$$

a second circuit for computing $Y'(n) = \sum_{k=0}^{17} x(k) \cos[\frac{\pi}{36}(2k+1)n]$ for $0 \le n \le 17$;

a third circuit for defining $Y(0) = Y'(0)/2$; and

a fourth circuit for computing $Y(n) = Y'(n) - Y(n-1)$ for $1 \le n \le 17$,

where y is an input data, *x(k)* is re-arranged data for y, *Y'* is discrete cosine transform of *x*, *Y* is modified discrete cosine transform of y, and b_k is a constant.

5. (Currently Amended) A method performed by a computer for computing modified inverse discrete cosine transform comprising the steps of:

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computing $\cancel{Y'(k) = Y(k) \cdot b_k}$ $Y''(k) = Y(k) \cdot b_k$ for $0 \le k \le 17$;

computing $\cancel{y'''(n) = \sum_{k=0}^{17} Y'(k) \cos[\frac{\pi}{2*18}(2k+1)n]}$ $y'''(n) = \sum_{k=0}^{17} Y''(k) \cos[\frac{\pi}{2*18}(2k+1)n]$

for $0 \le n \le 17$;

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computing

$$y'(n) = \begin{cases} y'''(n+9) & \text{for} \quad 0 \le n \le 8 \\ 0 & \text{for} \quad n = 9 \\ -y'''(27-n) & \text{for} \quad 10 \le n \le 26 \\ -y'''(n-27) & \text{for} \quad 27 \le n \le 35 \end{cases};$$

defining $y(0) = \sum_{k=0}^{18-1} Y(k) \cdot c_k$; and

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computing $y(n) = y'(n) - y(n-1)$ for $1 \le n \le 35$,

where Y'' is the modified discrete cosine transform of y multiplied by b_k, y''' is the discrete cosine transform of Y'', and y' is re-arranged data for y'''.

6. (Currently Amended) An electronic circuit for fast computation of computing modified inverse discrete cosine transform comprising:

a first circuit for computing ~~$Y'(k) = Y(k) \cdot b_k$~~ $Y''(k) = Y(k) \cdot b_k$ for $0 \le k \le 17$

a second circuit for computing ~~$y'''(n) = \sum_{k=0}^{17} Y'(k) \cos[\frac{\pi}{2*18}(2k+1)n]$~~

$$y'''(n) = \sum_{k=0}^{17} Y''(k) \cos[\frac{\pi}{2*18}(2k+1)n] \quad \text{for} \quad 0 \le n \le 17$$

a third circuit for computing

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$$y'(n) = \begin{cases} y'''(n+9) & \text{for} \quad 0 \le n \le 8 \\ 0 & \text{for} \quad n = 9 \\ -y'''(27-n) & \text{for} \quad 10 \le n \le 26 \\ -y'''(n-27) & \text{for} \quad 27 \le n \le 35 \end{cases}$$

a fourth circuit for defining $y(0) = \sum_{k=0}^{18-1} Y(k) \cdot c_k$; and

a fifth circuit for computing $y(n) = y'(n) - y(n-1)$ for $1 \le n \le 35$,

where Y'' is the modified discrete cosine transform of y multiplied by b_k, y''' is the discrete cosine transform of Y'', and y' is re-arranged data for y'''.